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ABSTRACT

In order to compare the effect of individualized reading and writing instruction for six-year-olds at nursery school with the effect of ordinary preschool activities not including. reading and writing instruction, three groups of Linkoping (Sweden) school children were studied--experimental groups (E) and control groups (K1) consisting of preschool children and a control group (K2) consisting of pupils who were in first grade while E and K1 were in nursery school. The 16 E and K1 groups (with 20 children in each group) were made as equivalent as possible on the basis of reading test results. Pupils in the E groups were taught reading and writing for 30 minutes twice a day throughout the school year and otherwise took part in regular preschool activities. In the K1 groups no reading and writing instruction occurred, and in the K2 groups such instruction occurred according to the usual school curriculum. Results of tests given at the end of the year showed that the E groups were superior to K1 pupils at almost all levels. (Tables of findings are included.) (JM)

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SCHOOL RESEARCH

newsletter

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Background

Research has previously been carried out at the National Experimental school in Linköping concerning the possibility of preventing or curing special reading disabilities during the first years of school. This research showed that early and highly individualized auxiliary teaching (in a reading clinic) can help to prevent such difficulties occurring. In order to be able to administer auxiliary teaching in time, the pupil's development, particularly his reading readiness, must be diagnosed at the earliest possible opportunity. (Malmquist, 1969).

If systematic teaching of reading and writing can already be started during the pre-school years, it will be possible for pupils in need of special auxiliar tuition to be identified at a far earlier stage than at present. If the teaching of reading and writing is highly individualized from the very outset and can also be conducted in relatively small

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groups, there is also reason to suppose that this kind of teaching can have the same essential effect as special auxiliary tuition, i.e. serve to prevent special reading disabilities occurring.

Previous research entitles us to assume that special reading disabilities are to no small extent due to som form of socio-cultural handicap (e.g. a verbally and intellectually meagre childhood environment). Insofar as this is true, early training of verbal skills must be highly important.

In view of the current debate concerning a possible reduction of the age at which comprehensive schooling begins or alternatively of the introduction of compulsory pre-school education, an investigation of the feasibility of systematic teaching activities at this stage is urgently needed, with a view among other things of the possibility of providing effective teaching in the rudiments of reading and writing.

2 Purpose

To study the effect of individualized reading and writing tuition for six-year-olds at nursery school as compared with ordinary pre-school activities not including reading and writing instruction. This effect is being studied with reference to the development of the pupils' reading and writing skills up to the end of grade 3 of the comprehensive school.

3 Pilot experiment

A pilot experiment was carried out in Linköping during the school year 1970-1971. All six-year-olds (40 children in all) enrolled at a Linköping nursery school in the Johannelund area were tested at the beginning of the autumn term using a reading readiness test and a school maturity test for beginners, both compiled by Eve Malmquist. On the basis of the test results the children were divided into four groups,

which were made as equivalent as possible with regard to the children's development and achievement levels.

One of these groups of 10 children was selected by a random procedure to be the experimental group in the pilot experiment. The other pupils at this nursery school served as a control group. The children in the experimental group were taught reading and writing in two lessons of about 30 minutes each per school day during their regular hours at nursery school. No reading and writing tuition occurred in the control group, all the time allotted being devoted to ordinary pre-school activities. During their reading and writing lessons the children in the experimental group were taken by a qualified primary school teacher. Otherwise both the experimental group and the control group were taught by pre-school teachers.

Up to the middle of November, the pupils in the experimental group were only given exercises of various kinds serving to stimulate their reading and writing maturity. This was followed by the reading and writing tuition proper, the speed and standard of which were adapted to suit the individual aptitudes of the various pupils.

Evaluative measurements at the end of the spring term 1971, using reading tests 1-7 and writing tests 1-2 (Malmquist) together with spelling tests 1-2 (Ekener-Malmquist) showed that all 10 pupils in the experimental group were able to recognize and correctly reproduce all the letters of the alphabet and read simple continuous texts of the kind ordinarily included in reading books for grade 1 of the comprehensive school. Two of the pupils were able to read and write as well as average pupils at the end of grade 3 of the comprehensive school, while the 3 weakest pupils had a reading and writing ability corresponding to the average for the month of January in grade 1 of the comprehensive school.

The average of the entire experimental group as regards reading and writing ability was rated by the end of the pre-school year to be on a level with that encountered in an average group of pupils in grade 1 of the comprehensive school around April 1 in the spring term.

The experience gained from the pilot experiment outlined above with regard e.g. to the children's interest in mastering the subject matter and their ability to do so was of a highly positive nature. The material for exercises to stimulate reading readiness and for the actual practice of reading and writing specially adapted for children at this maturity stage which was used for the experiment, with its slowly rising standard of difficulty and an appropriate methodology, was found to work satisfactorily. Both material and methodology could therefore be applied in the main study, following minor adjustments and additions.

4 The main study

4.1 Disposition

The population of the main study comprises all the children attending nursery school during the year before they are due to start their compulsory schooling, i.e. for the most part six-year-olds. The survey incorporates three groups of children:

Experimental groups (E) and control groups (K1) in the form of pre-school groups of approximately 20 pupils each, all from the same cohort of six-year-olds, and a control group (K2) consisting of pupils from the previous cohort, i.e. pupils who were in grade 1 during the school year 1971-1972, when the E and K1 pupils were at nursery school. The K2 group makes it possible to compare the effect of reading and writing instruction in nursery school (the E group) with the effect of the regular teaching of reading and writing in grade 1 of the comprehensive school.

In the E groups reading and writing practice were introduced during the pre-school year at a pace and a level adapted as far as possible to individual aptitudes of the pupils. The practice was led by qualified and experienced primary school teachers in collaboration with the various pre-school teachers. It took place in half groups (about 10 pupils) for two 30-minute lessons per school day, corresponding to 7 periods per week in the comprehensive school. The rest of the time was devoted to ordinary pre-school activities.

In the K1 groups no reading or writing practice took place, all the time being devoted to ordinary pre-school activities.

In the K2 groups reading and writing practice occurred on the scale and the lines indicated by the 1969 comprehensive school curriculum (Lgr 69). The leaders of the experiment did not supply more detailed instructions as to how this teaching should be conducted.

4.2 Subjects

The main study began in the Linköping school area during the school year 1971-1972 and involved five of the six nursery schools admitting only six-year-old children that year. Altogether there were 16 groups each numbering about 20 pupils.

The various groups at each school were made as equivalent as possible on the basis of the results of some of the basic tests employed (school maturity test, reading readiness test for beginners 1-5//Malmquist/, Visual perception 2 /Engwall--Malmquist/). Half the groups were then selected by lot to be E groups, the remainder being designated K1 groups.

Twelve classes (275 pupils) were selected from the grade 1 classes set up in Linköping comprehensive schools in the autumn term of 1971. The pupils in these 12 classes who had attended nursery school the previous year constituted the K2 group of the survey.

4.3 Teachers in the E groups

Four qualified and experienced primary school teachers were appointed for the entire school year to teach the E group pupils reading and writing during their year at nursery school. Each of the teachers took four groups of 10 pupils. Thus to begin with the study involved 16 groups of 10 pupils each, who were taught reading and writing by these four primary school teachers for two 30-minute lessons daily throughout the school year. Apart from these lessons the E group pupils took part in the regular nursery school activities led by pre-school teachers.

4.4 Measuring instruments used

1) Basic variables

a) Tests to investigate the children's knowledge and skills on starting school (Malmquist)

b) School maturity test for beginners (Malmquist)

c) Reading readiness tests 1-5 (Malmquist)

d) Visual perception test 2 (Engwall-Malmquist)

e) Rating scheme (12 personality variables according to a five-grade scale; Malmquist)

2) Criterion variables

a) Reading test 5 (Malmquist)

b) Reading test 7 "

c) Rating scheme (12 personality variables according a five-grade scale; Malmquist)

d) Reading test 1 (Malmquist)

e) Reading test 2 "

f) Reading test 3, parts 1 and 2 "

g) Reading test 4 "

h) Reading test 6 "

i) Spelling group test 1 (Malmquist-Ekener)

j) Copying test (Malmquist)

k) Questionnaire to parents of E group pupils

l) Rating scheme (infant teachers´ratings of pupils on 5-grade scale with regard to silent reading, oral reading, writing proficiency, other subjects, school adjustment and relations with classmates)

m) Reading test 8 (Malmquist)

n) Questionnaire to parents concerning children´s school adjustment and reading habits at home.

For reliability data etc. for the tests used in the study, the reader is referred to Malmquist (1969) pp. 29-31 and Malmquist (1973) pp. 221-231.

4.5 Methodology concerning the learning of reading and writing at nursery school

The research findings and the practical educational experience stemming from our previous studies of factors related to reading difficulties (Malmquist 1961, 1962, 1964, 1969, 1973a) have, together with the pilot experiment related above constituted the point of departure in planning the teaching of reading and writing at nursery school for the purposes of the main survey.

On the basis of the results of diagnostic tests given at the beginning of the pre-school year and of continuous informal measurements and observations concerning the different pupils' resources and achievements in different respects in the course of teaching, the teachers have been able to establish a teaching organization and a working procedure permitting a high level of individualization. Exercises to stimulate reading and writing readiness have taken up a far larger proportion of teaching time during the first months at nursery school than is usually the case in grade 1 of the comprehensive school.

Examples of exercises for the stimulation and development of the skills of speaking, relating, describing, of listening actively and attentively, of making visual and auditive distinctions and identifications, of working with rhymes, verses and rhyming games etc. of the kind used in the study are to be found e.g. in Malmquist (1973a). The actual reading instruction has been carried out in forms varying from class-teaching of an ordinary kind with the entire group assembled (10 pupils), to teaching in smaller groups of 2-3 pupils and fully individualized exercises.

A combination of reading methods has been used (vid. Malmquist, 1973b, pp. 59-62). For the most part the teaching process has been followed which is recommended in Malmquist/ Mosskin´s reading tutor series I Can Read. However, supplementary reading exercises have been taken from several other readers, work books and extra reading booklets. Throughout the rate of progress has been appreciably slower than is common when teaching pupils in grade 1.

The pupils have only used printed letters when writing. Writing practice has for the most part served to reinforce the learning of reading. Owing to the shortage of time - 7 periods per week as against 11 in grade 1 - only a limited amount of productive writing practice has occurred.

Table no. 1

Basic test data for the E group and K1 group at the start of the pre-school year

Test	E group			K1 group		
	n	M	s	n	M	s
School maturity	159	22,21	8,57	144	22,70	8,47
Visual perception 2	159	3,57	5,19	144	3,74	5,11
Reading readiness 1-5	159	17,07	6,58	144	17,14	6,24

4.6 Teaching in grade 1

When the pupils who had been taught reading and writing during their pre-school year (the E group) started in grade 1 of the comprehensive school in the school year 1972-1973, they were divided between various classes in the school areas catering for their home areas. In this way roughly half the pupils in many classes came from the E group. Other classes included only a small number of E group pupils, one

of them including one such pupil only. The pupils from the K1 group were similarly distributed.

In their discussions with the grade 1 teachers having one or more E group pupils in their classes, the leaders of the survey stressed the importance of following the instructions of the curriculum regarding the individualization of tuition according to the initial status of the E group pupils in terms of reading and writing proficiency. As we foresaw that existing supplies of reading material would be insufficient, due to the heavy individualization requirement, supplementary material was purchased out of project funds for classes including E group pupils. No further methodological instructions were given to the teachers concerned.

4.7 Preliminary account of results

4.7.1 The pre-school year

Evaluative measurements of the results of reading and writing tution in the E groups took place at the end of May in the spring term of 1972 using Reading tests 1, 3, 4, 5, 6 and 7 (Malmquist), Spelling group test 1 (Malmquist - Ekener) and Copying test (Malmquist). Corresponding measurements were undertaken in the K2 survey groups in grade 1 of the comprehensive school. The results of these measurements showed a good fit with the pilot experiment results presented above.

In view of the limited amount of time devoted to reading and writing practice in the E groups (7 periods per week as against 11 in grade 1), the progress made by the pupils in these groups with regard to reading and writing proficiency can be said to have been satisfactory.

Following the conclusion of reading and writing instruction for the E group pupils at nursery school, in June 1972, parents were asked to state their attitude to the experimental activities by completing a questionnaire. This questionnaire was completed by the parents and guardians of 151 out

Of the 154 children in the experimental group, 93 per cent of the respondents expressed a positive or highly positive attitude and less than 3 per cent a negative attitude to the reading and writing instruction given at nursery school.

4.7.2 The first year at comprehensive school

During the spring term 1973 tests were conducted in those classes of grade 1 of the comprehensive school in Linköping including at least 3 pupils, who had belonged to the E or K1 groups. The classes affected included a total of some 400 pupils. Of these 368 took part in the tests, 126 coming from the E group of the project and 104 from the K1 group.

The tests were carried out in March using reading tests 5a, 5b and 7 (Malmquist). Tests were also carried out during the latter part of May using the following tests: Reading test 3 parts 1 and 2 (an individually administered oral reading test) and the group tests Reading test 4 (word comprehension) and Reading test 8 (reading comprehension), all of these tests being taken from Malmquist's series Diagnostic reading tests.

Table 2.

Results of reading test 3, part 1.

Percentile	Reading test 3:1 (speed in secs.)		Reading test 3:1 (No. mistakes)	
	K 1 group	E group	K1 group	E group
90	25.9	17.7	0.2	0
80	34.4	22.3	0.7	0.4
70	39.8	26.6	1.2	0.9
60	52.2	30.9	2.0	1.6
50	70.8	38.5	3.0	2.3
40	82.5	47.1	4.2	3.1
30	105.5	58.9	5.3	4.4
20	135.5	88.5	7.6	6.8
10	173.5	156.6	11.3	11.2
5	238.5	203.0	18.9	14.4

Note: The percentile values make it possible to assess a pupil's reading achievement in relation to the group to which the pupils belongs (K1 group or E group).

Example. A pupil completing reading test 3:1 in 120 sec.s comes between the 30th (105.5) and 20th (135.5) percentiles for the K1 group. Thus more than 70 per cent of the pupils in the K1 group have read faster than this pupil, while 20 per cent of them have read more slowly.

Table 3.

Results of Reading test 3, part 2

Percentile	Reading test 3:2 (speed in secs.)		Reading test 3:2 (no. mistakes)	
	K1 group	E group	K1 group	E group
90	45.2	33.5	1.0	0.7
80	69.5	43.0	1.9	1.9
70	88.5	55.1	3.2	3.1
60	111.0	62.7	5.2	4.6
50	132.0	79.5	8.5	6.3
40	168.0	95.3	10.9	7.9
30	213.5	124.0	12.2	10.8
20	250.5	173.5	16.6	15.9
10	322.5	267.5	22.3	21.2
5	349.0	308.0	26.3	27.4

Table 4.

Results of Reading tests 4 and 8

Percentile	Reading test 4 (no. right)		Reading test 8 (no. right)	
	K1 group	E group	K1 group	E group
90	42.4	47.0	17.1	23.7
80	33.5	44.1	12.7	20.1
70	32.8	41.0	9.9	16.8
60	30.8	36.7	7.8	12.4
50	27.0	33.7	6.5	9.8
40	24.0	29.9	5.3	7.8
30	21.9	25.2	4.1	6.1
20	19.4	21.1	2.9	4.1
10	15.6	17.0	1.3	2.6
5	12.6	15.6	0.7	0.9

Tables 2-4 are a summary of the results of the May tests stated in the form of percentile values for K1 group and E group respectively in each of the tests. The 50th percentile, or the median, has been marked specially because this is the best average for each group (the arithmetical average is less suitable owing to the bias of the distributions).

As can be seen from the presentation of results, the E group pupils are superior to the K1 pupils at practically all levels. The tendency is the same as in the March tests. Additional follow up surveys will be undertaken in grades 2 and 3 of the comprehensive school.

The results of these surveys will be reported later, at the same time as a more detailed analysis is given of data which have already been collected.

Further reading

Malmquist, E. (1961): Children's knowledge and skills on starting school. Research reports from the National School for Educational Research in Linköping. No. 1, Karlshamn. (Summary in English)

(1962): Typewriters in elementary reading and writing instruction. Research reports from the National School for Educational Research in Linköping. No. 2, Karlshamn (Summary in English)

(1964): Experimental studies concerning the effect of postponing the change from printing to ordinary longhand from grade 1 to the beginning of the spring term in grade 3. Research reports from the National School for Educational Research in Linköping. No. 3, Karlhamn. (Summary in English)

(1969): Reading difficulties at the lower level of comprehensive school. Experimental studies. Research reports from the National School for Educational Research in Linköping. No. 13, Falköping (Summary in English)

(1973a): Special reading disabilities in children. Analysis and treatment methodology. Lund (In Swedish)

(1973b): Reading instruction in the comprehensive school. Lund. (In Swedish)

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